

REMARKS

Favorable reconsideration of this application in view of the foregoing amendments and remarks to follow is respectfully requested.

Applicants have amended Claim 1 to recite the following:

A structure for interconnecting semiconductor components comprising:

a layered substrate for transferring, said layered substrate including a semiconductor substrate, a device layer located directly on an upper surface of said semiconductor substrate, and an interconnect layer abutting an upper surface of said device layer, said interconnect layer including a blanket layer of a metallic element or a patterned metallic element having portions comprised of an insulating material to provide a patterned wiring level;

a bi-layer capping coating on top of the layered substrate, each layer of said coating provides adhesion and protection, said bi-layer capping coating comprising a first layer of silicon nitride abutting an upper surface of said interconnect layer, said first layer of silicon nitride is at least one of a diffusion barrier layer, a passivation layer, or a protection layer, and a second layer of an amino silane atop said first layer of silicon nitride, said layer of silicon nitride caps said blanket layer of the metallic element or the patterned metallic element; and

a carrier assembly located atop said bi-layer capping coating.

Support for the amendment to Claim 1 to include the limitation to “the interconnect layer including a blanket layer of a metallic element or a patterned metallic element having portions comprised of an insulating material to provide a patterned wiring level” is found throughout Applicants’ disclosure. Specifically, referring to Figure 2 and paragraph 0054 of Applicants’ disclosure, Applicants teach the following, where italics have been provided to emphasize the support for the above limitation:

In FIG. 2, reference numeral 100 denotes a layered substrate to be transferred. The layered substrate 100 includes a semiconductor substrate 100, device layer 102 which can be terminated with *a layer 103 that comprises at least one metallic element* such as Ti, Ta, Zr, Hf, silicides,

nitrides and conducting silicon nitrides of the aforementioned elemental metals; Cu, W, Al, composites of these metals with glass; and any combination thereof. Preferably, layer 103 comprises Cu. *The metallic element of layer 103 may be patterned, i.e., a patterned wiring level, or a blanket layer. When a patterned metallic element is present, portions of layer 103 may be comprised of an insulating material* including oxides, nitrides, oxynitrides, polymeric dielectrics and inorganic dielectrics. The insulating material may be porous or non-porous. The layered substrate 100 is fabricated using any well-known semiconductor processing technique.

Support for the amendment to Claim 1 to include the limitation to the “first layer of silicon nitride being at least one of a diffusion barrier layer, a passivation layer, or a protection layer” is found throughout Applicants’ disclosure, e.g., see paragraphs 0048 and 0053. Applicants have amended dependent Claims 9, 10 and 11 to correspond to the amendment to Claim 1. Applicants have cancelled Claim 7, to avoid possible duplication with the subject matter added to Claim 1.

In the outstanding Office Action, the Examiner has objected to the drawings under 37 C.F.R. §1.83(a). The specification stands objected to as allegedly failing to provide proper antecedent basis for the claimed subject matter. Claims 1-6, 8-11, and 13-18 are rejected under 35 U.S.C. §112, first paragraph, as allegedly failing to comply with the written description requirement. Claims 1-6, 8-11, and 13-18 also stand rejected under 35 U.S.C. §112, first paragraph as allegedly failing to comply with the enablement requirement. Applicants traverse the aforementioned objections and rejections and submit the following.

Referring first to the objection to the drawings, it is the Examiner’s position that the drawings must show every feature of the invention specified in the claims citing 37 CFR §1.83(a). Applicants note that the claims have been amended to remove the terms that the Examiner has objected to, and, as such, the present amendments obviate the present drawing objection.

Regardless, Applicants note that 35 U.S.C. §113 indicates that the Applicant shall furnish a drawing where necessary for the understanding of the subject matter to be patented. Further, MPEP 601.01(f) provides that “It has been USPTO practice to treat an application that contains at least one process or method claim as an application for which a drawing is not necessary for an understanding of the invention under 35 USC §113”. This means that the drawings are not always necessary. In the event a claim element is known in its functionality and definition, as understood from the specification, it is not necessary to represent the element in the drawings.

Applicants submit that the terms that are recited in the present amended Claim 1 are clearly understood from the portions of the specification that the Applicants have cited above for supporting the present amendment. Therefore, since the previously objected material has been removed from the claims, and that the subject matter of the present amendments are clearly described in the specification in a manner that one skilled in the art would understand the invention, Applicants submit that the drawing objections have been obviated and the drawings are in condition for issuance of the application.

Referring to page 3 of the supplemental Office Action, the Examiner objected to the specification for allegedly failing to provide proper antecedent basis for the claimed subject matter. The objection to the specification has been obviated by the above-described amendment to Claim 1.

Turning to the §112 rejections, the Examiner has objected to the previously amended limitations of “at least one metallic component embedded within an insulating material” and “said first layer is non-patterned”.

Referring first to the alleged failure to comply with the written description requirement, Applicants submit that the present amendments to the claims are clearly supported by the specification. To satisfy the written description (enablement) requirement, a patent specification

must describe the claimed invention in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention. *See, e.g., Vas Cath, Inc. v. Mahukar*, 953 F.2d at 1563, 19 USPQ2d at 1116. Applicants note that for the purposes of written description the claims are interpreted in light of the specification in its entirety, which includes, but is not limited, to the drawings. Support for the present amendments has been discussed above. In light of the amendment to Claim 1, Applicants submit that the present § 112 written description rejection has been obviated and respectfully request withdrawal thereof.

Turning to the alleged failure to comply with the enablement requirement, Applicants submit that the essential goal of the enablement requirement is to clearly convey the information that an Applicant has invented the subject matter which is claimed.” *In re Barker*, 559 F.2d 588, 592 n.4, 194 USPQ 470, 473 n.4 (CCPA 1977). The analysis of whether the specification complies with the written description requirement calls for the Examiner to compare the scope of the claim in the scope of the description to determine whether the Applicant has demonstrated possession of the claimed invention. The description, i.e., the specification, includes, but is not limited to, the drawings. Such a review is conducted from the standpoint of one of skill in the art at the time the application was filed. *See e.g. Wang Labs v. Toshiba Corp.*, 993 F.2d 858, 865, 26 USPQ 2d 1767, 1774 (Fed. Circ, 1993).

For the purposes of advancing prosecution, Applicants have amended claim 1 to remove the term “non-patterned” and have amended Claim 1 to now recite that “the first layer of silicon nitride is at least one of a diffusion barrier layer, passivation layer, or protection layer”. Applicants observe that one skilled in the art would recognize that the Applicant has demonstrated possession of these claimed features because they are clearly recited in paragraphs 0048 and 0053 of Applicants’ disclosure.

If any issues remain outstanding, incident to the formal allowance of the application, the Examiner is requested to contact the undersigned at (516) 742-4343 to discuss same, in order that this application may be allowed and passed to issue at an early date.

Respectfully submitted,



Harry A. Hild

Registration No.51,803

SCULLY, SCOTT, MURPHY & PRESSER, P.C.
400 Garden City Plaza - Suite 300
Garden City, New York 11530
(516) 742-4343

LSS:HAH:reg